



# Oregon

Kate Brown, Governor

## Water Resources Department

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December 16, 2016

Katrina Sutphin  
1401 Alameda drive  
Ontario, OR 97914

### **Re: Crowley Dam (C-10) - Inspection Summary**

On May 19, 2016 Watermasters Ron Jacobs and JR Johnson inspected Crowley Dam. The frequency of inspection depends on the hazard the dam presents to downstream resources as well as the condition that it is in. Crowley dam is classified as a high hazard dam due to the location of the residence downstream. It has been in UNSATISFACTORY condition because of the severe cracking in the structure, and the fact valves cannot be opened to drain it. As noted in last year's inspection report, the dam is no longer serviceable. Crowley dam has been allowed to deteriorate over the course of many years. Historical documentation indicates that the dam is over one hundred years old. We do not see how the dam can be repaired. Therefore, removal, with or without replacement, appear to be the only options.

The most significant changes to the dams' condition since the last inspection are the enlargement of the hole associated with a significant vertical crack in the face of the dam, and the sloughing off of yet more material along the front face about midway up.

Because there is no effective way to release water from the reservoir with any control the reservoir is still able to fill to the point of overtopping the dam. The concrete in its entirety is badly deteriorated, including cracks over most of the dam and a hole through the dam. This poses a serious risk to anyone in the residence located downstream when the dam fails.

Concrete arch dams are likely to fail suddenly and catastrophically and without warning. Removal of Crowley dam appears to be the only option. Until this dam is removed, the valves need to be modified so that they remain fully open. Open pipes will greatly reduce the risk of the reservoir filling. It is of critical importance to prevent water building up a hydraulic load on the dam. Failure to take actions to address these serious safety issues will require the department to take actions under ORS 537.450-490 since the safety of this dam is seriously in question. Persons below the dam, including anyone in your house would be a high risk if the reservoir behind the dam fills. It is likely that persons in the home or on the road below the dam would be at high risk if they were present when the reservoir contained a significant volume of water.

The Crowley Dam site is an excellent location for dam. The natural channel constriction in conjunction with substantial hard rock abutments presents itself as a good candidate for a

replacement project. While dangerous to leave the dam in its current condition, we are most willing to help explore any available options for its replacement.

Please contact me for clarification of this situation. Action to remove the valves and or keeping people out of the area below the dam is now strongly advised. No action will likely result in a formal notice of an unsafe dam. I would like to meet with you on site next year to discuss options for this site. Our preference is for you to develop a plan for removal and replacement of this dam. A field inspection sheet for this dam is attached.

Sincerely,

A handwritten signature in blue ink that reads "Keith Mills". The signature is fluid and cursive, with "Keith" on the top line and "Mills" on the bottom line.

Keith Mills, P.E.,G.E., State Engineer for Water Resources

Phone: (503) 986-0840

Cell: (541) 706-0849

C: Brenda Bateman  
JR Johnson  
Ron Jacobs



## IIIA. Other Instrumentation

 Piezometers Inclinometer(s) Ground MotionReviewed by dam safety engineer:  NA  Yes  No

IV. Conduit	Control: <input type="checkbox"/> Trickle tube <input type="checkbox"/> Manual Valve <input type="checkbox"/> Power Valve <input type="checkbox"/> other	Rating
Inlet gate	<input type="checkbox"/> Submerged	5/10 over
Trash Rack	<input type="checkbox"/> Submerged	
Control/Stem	<input type="checkbox"/> Clean <input type="checkbox"/> Greased <input type="checkbox"/> Irregular	1
Valve(s) cycling	<input checked="" type="checkbox"/> Frozen <input type="checkbox"/> unknown <input type="checkbox"/> past year <input type="checkbox"/> frequent	
Diameter:	Material <input type="checkbox"/> Condition	
Outlet Structure	<input type="checkbox"/> Overgrown <input type="checkbox"/> Clean <input type="checkbox"/> Pressurized <input type="checkbox"/> Leaking _____ gpm	
Secondary outlet	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Type _____	Diameter 16 in. 1
Comments:		

V. Spillway	<input type="checkbox"/> Earth <input type="checkbox"/> Rock <input type="checkbox"/> Concrete <input type="checkbox"/> Other	Rating
Modifications	<input checked="" type="checkbox"/> None <input type="checkbox"/> Reduction in capacity <input type="checkbox"/> Feature not on design	
Approach Channel	<input checked="" type="checkbox"/> Clear <input type="checkbox"/> Trees/brush <input type="checkbox"/> debris <input type="checkbox"/> sill	
Flashboards/Gate	<input type="checkbox"/> None <input type="checkbox"/> In place <input type="checkbox"/> operational <input type="checkbox"/> deteriorated	
Discharge Channel	<input type="checkbox"/> Clear <input type="checkbox"/> Trees/brush <input type="checkbox"/> leakage <input type="checkbox"/> headcutting	
Stilling basin	<input type="checkbox"/> N/A <input type="checkbox"/> Functional <input type="checkbox"/> Minor Erosion <input type="checkbox"/> Severe Erosion/Undercutting	
Aux. Spillway	<input type="checkbox"/> Yes <input type="checkbox"/> No (use comments below)	
Comments:		

VI. Access and Security		Rating
Vehicle access	<input type="checkbox"/> Public road <input type="checkbox"/> all weather road <input checked="" type="checkbox"/> dirt road <input type="checkbox"/> cross country	4
Fencing, signage	<input checked="" type="checkbox"/> Remote <input type="checkbox"/> Clear signage <input type="checkbox"/> Secure Fence <input type="checkbox"/> Camera <input type="checkbox"/> Unsecure	4
On Site Dam Tender/Contact	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name: _____ Phone: _____	
Emergency Action Plan	<input type="checkbox"/> Not required <input type="checkbox"/> Completed _____ at dam (dated _____) <input type="checkbox"/> None	
Comments:		

Comments:

No control of reservoir pool.